GLOSSARY

Accretion - The process of building by accumulation.

Alluvium - The general name for all sediments deposited on the and surface by streams.

Anthropic - A diagnostic surface layer of soil, about one foot in thickness, in which the content of soluble P_2O_5 is greater than 250 ppm. It develops due to long periods of cultivation and fertilization.

Aquatic - Those organisms (plant and animal) that live in the water.

Aquifer - Stream or zone below the surface of the earth capable of producing water.

Archaeology - Relates to occupation sites, work areas, evidence of farming or hunting and gathering, burial sites, artifacts, and structures of all types, usually dating from prehistoric or aboriginal periods, or from historic periods and non-aboriginal activities for which only vestiges remain.

Bank - Topographic feature which, together with the bed, defines the stream channel and may include scarp, berm, and bench areas indicative of failure and erosion processes.

Bank Erosion - Erosion in which the ground bordering a stream and serving to confine the water to the natural channel during normal course of flow is removed.

Bed - A stratum one centimeter or more thick. Also, the floor of a stream channel.

Bedrock - Continuous solid rock that underlies weathered rock in soil everywhere and in a particular spot forms the consolidated portion of the earth's surface.

Bench - The relatively mild slope that occurs riverward of the scarp and berm. This mildly sloping area generally is visible at normal pool levels and in many areas extends a considerable distance riverward of the land-water contact at normal pool. The visible portion of the bench is termed "subaerial bench" and the underwater portion is termed the "subaqueous bench".

Berm - Failed soils that accumulate at the base of the scarp at a failed or eroded bank, generally resulting in a wedge shaped failed soil deposit.

Calcareous - Soils or water containing calcium carbonate ($CaCO_3$).

Canopy - The uppermost leafy cover in a forest.

Channel Erosion - Erosion in which material is removed by water flowing in well-defined channels; erosion caused by channel flow.

Chute Cutoff - A new channel cut across a point bar, producing the abandonment of part of a meander.

Clay - As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay skins - A modification of the texture, structure, or fabric of a soil material consisting of a coating of clay minerals on the surface of a ped or the wall of a void in a soil mineral.

Cleft Pressures - Pressures caused by a sudden cut, breach, or other sharp opening such as a wave-cut gully in a cliff.

Cohesion - In general, an electrostatic force of attraction among fine soil particles. In soil mechanics, the term "cohesion" refers to that portion of the resistance to shearing deformation possessed by a soil, which is not due to friction between particles or to the physical interference of one particle with another in resisting shearing movements.

Colluvium - Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposits at the base of steep slopes.

Concretion - A hard, compact rounded, normally subspherical mass or aggregate of mineral matter generally formed by orderly and localized precipitation from aqueous solution in the pores of a sedimentary or fragmental volcanic rock and usually of a composition widely different from that of the rock in which it is found and from which it is rather sharply separated. It represents a concentration of some minor constituent or of cementing material such as silica, calcite, dolomite, iron oxide, pyrite, or gypsum, and is characterized by concentric shells of slightly varying properties due to variation during growth.

Confluence - The place of meeting of two streams.

Consistence, Soil - The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose - Noncoherent; will not hold together in a mass.

Friable - When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm - When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic - When wet, readily deformed by moderate pressure, but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky - When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard - When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft - When dry, breaks into powder or individual grains under very slight pressure.

Cemented - Hard and brittle, little affected by moistening.

Creep - The imperceptibly slow downslope movement of weathered rock and soil materials. This term is interchangeable with solidification in general usage.

Cubic Feet per Second (cfs) - Commonly reported unit of measurement for the rate of flow of water in the U.S.

Cycle of Erosion - The sequence of landforms, essentially valleys and hills, through which a land mass is considered to evolve from the time it begins to be eroded until it is reduced to an equilibrium condition.

Datum - A reference element, such as a line or plane, in relation to which the position of other elements are determines. Also called the "reference plane" or "datum plane".

Debris Flow - The rapid downslope plastic flow of a mass of debris.

Discharge - The quantity of water passing a given point in a given unit if time.

Drawdown - The difference in elevation between the water surface elevation at a constriction and what the elevation would be if there were no constriction.

Dredge Materials - Sediments obtained from dredging.

Dredging Maintenance - Removal of material from the river channel, locks, and approaches to the locks.

Ecosystem - Any unit that includes all of the organisms (the community) in a given area interrelated with the physical environment.

Elevation - The vertical distance from the datum, usually mean sea level (msl), to a point or object on the earth's surface.

Eluviation - The downward movement of soluble or suspended material in a soil, from the A horizon to the B horizon, by groundwater percolation. The term refers especially, but not exclusively, to the movement of colloids, whereas the term leaching refers to the complete removal of soluble materials.

Environment - All the conditions, circumstances, and influences surrounding and affecting the development of an organism or group of organisms.

Eolian - Windblown transport of sediment.

Erosion - A general term that describes the physical breaking-down, chemical solution, and movement of rock fragments and soils from place to place on the surface of the earth.

Frost Heaving - The lifting of soil or rock materials by expansion of ice during freezing of water contained within the soil or rock mass.

Frost Wedging - The mechanism involving the pushing-up or apart of rock particles by the action of the ice.

Geologic Time Scale -

Era	Period	Approx. # of years ago
Cenozoic	Quarternary	1 Million
	Tertiary	60 Million
Mesozoic	Cretaceous	130 Million
	Jurassic	165 Million
	Triassic	195 Million
Paleozoic	Permian	220 Million
	Pennsylvanian	240 Million
	Mississippian	260 Million
	Devonian	320 Million
	Silurian	360 Million
	Ordovician	430 Million
	Cambrian	510 Million
Precambrian Eras		3 Billion

Geology - The science dealing with the structure if the earth's crust and the formation and development of its various layers. It includes the study of individual rock types and early forms of life found as fossils in rocks.

Glaciation - The alternation of a land surface movement of glacier ice.

Groundcover - The lowermost vegetational zone.

Groundwater - That water beneath the earth's surface which is contained in the pore spaces within the soil and bedrock. (In this connection, geologists frequently refer to water within the regolith, meaning that water contained within the bedrock and overlying weathered rock materials, but not the water contained within the uppermost soil layers which support plant growth.)

Habitat - A place where a given species lives, generally the kind of place rather than a geographic location.

Historical - References to features generally consisting of post European structures or sites which are relevant to an event, person, or period specifically commemorative to previous generations.

Holocene - An epoch of the Quaternary period, from the end of the Pleistocene (0.01 million years before present) to the present time: also, the corresponding series of rocks and deposits.

Horizon, Soil - A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes.

Hydrograph - A graph showing, for a given point on a stream, the discharge, stage, velocity, or other property of water with respect to time.

Hydrology - A science dealing with the properties, distribution, and circulation of water on the surface of land, in the soil, and underlying rocks, and in the atmosphere.

Kansan, Pre Illinoian - Older studies suggested two early Pleistocene glacial advances, the Nebraskan and Kansan. More recent work by the Iowa Geological Survey suggests many more early glacial advances and retreats. They suggest using the term Pre-Illinoian for the early Pleistocene events. Generally referred to as about 500,000 year ago and older. Following the Pre-Illinois is the **Yarmouth interglacial**. At about 225,000 years ago is the **Illinoian glacial stage**. Following the Illinoian is the **Sangamon interglacial stage**. The Sangamon continues to about 60,000 years ago and is followed by the **Wisconsinan**.

Leaching - The removal in solution of the more soluble minerals by percolating waters.

Levee: Natural - A broad, low ridge of fine alluvium built along the side of a stream channel by water spreading out if the channel during floods.

Liquefaction - A term utilized in soil mechanics to describe the loss of shearing resistance in a cohesionless material caused by vibration or shock loading and the consequent decrease in friction and interference between individual particles within the mass of soil. In such an instance, the granular soil will flow like a viscous fluid.

Load: Bed - The coarse solid particles, within a body of flowing fluid, moving along or close above the bed.

Load: Suspended - The fine solid particles turbulently suspended within a body of flowing fluid.

Loess - A type of soil composed of finely graded, wind-blown, silt-sized angular particles which are frequently cemented. Loess soils are frequently deep and appear homogeneous for most of their depth.

Map, Topographic - A map showing correct horizontal and vertical positions of features represented.

Mass-Wasting The movement of rock debris downslope under the influence of gravity, without the aid of a flowing medium to assist transport (air at ordinary pressure, water, or glacial ice).

Meander - A loop like bend of a stream channel.

Mesozoic - See Geologic Time Scale.

Morphology, Soil - The physical constitution of the soil expressed in the kinds of horizons, their thickness and arrangement in the profile, and their color, texture, structure, consistence, and chemical and biological properties.

Mottling, Soil - Irregular spots or patches of different colors, usually indicating poor aeration and lack of drainage. The pattern of mottles is described as to abundance, size, and contrast. Descriptive terms are as follows:

Abundance - few, common, and many.
Size - fine, medium, and coarse.
Contrast - faint, distinct, and prominent.
The size measurements are these:
Fine - less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension
Medium - 5 to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension;
Coarse - more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Native soils - Soils or group of soils that are restricted to a particular region or environment.

Natural Drainage - Refers to the condition that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation, but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural drainage are recognized.

- *Excessively drained soils* are commonly very porous and rapidly permeable and have a low water-holding capacity.
- *Somewhat excessively drained soils* are also very permeable and are free from mottling throughout their profile.
- *Well-drained soils* are nearly free from mottling and are commonly of intermediate texture.
- *Moderately well drained soils* commonly have a slowly permeable layer in or immediately beneath the solemn. They have uniform color in the A and upper B horizons and have mottling in the lower B and the C horizons.
- *Imperfectly or somewhat poorly drained soils* are wet for significant periods, but not all the time, podzolic soils that are somewhat poorly drained commonly have mottling in the lower part of the A horizon and in the B and C horizons (at a depth below 6 to 16 inches).
- *Poorly drained soils* are wet for long periods and are light gray and generally mottled from the surface downward, although mottling may be absent or nearly absent in some.
- Very poorly drained soils are wet nearly all the time. They have a dark gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Ordinary High Water - That elevation on the river bank which defines river dominance.

Overburden - Materials of any nature, consolidated or unconsolidated, that overlie inplace rock or a deposit of ores, or coal, especially those deposits that are mined from the surface by open cuts.

Paleosol - A buried soil horizon of the geologic past. When uncovered, it is said to be exhumed.

Parent Material (Soil) - The horizon of weathered rock or partly weathered soil material from which soil has formed; C horizon in the soil profile.

Pastureland - Land covered with grass or herbage suitable for grazing livestock.

Ped - A naturally formed unit of soil structure, e.g. granule, block, crumb, aggregrate.

Pedogenic - Pertaining to soil formation.

Pennsylvanian - The sixth system and period of the Paleozoic era; contains units younger than Mississippian, older than Permian.

Period - Unit of geologic time.

Piping - That mode of failure in soil masses which is produced by the removal of a grain of soil at the surface of the soil mass by water flowing from within the mass, with a progressive removal of other particles to form a conduit or pipe into the interior of the soil mass, with subsequent collapse of the mass after creation of this conduit or pipe.

Plant Community - The association of all the plants which are found living together in specific environmental situations.

Pleistocene - The earlier of the two epochs of the Quarternary period, also called Glacial epoch and formerly called Ice Age. The Ice Age occurred during the Pleistocene epoch which began about 1,000,000 years ago.

Point Bar - A crescent-shaped bar built out from each convex (inside) bank of a stream channel.

Profile, Soil - A vertical section of a soil through all of its horizons and extending into the parent material.

Relief - The elevations or inequalities of the land surface, considered collectively.

Rework and Transport - Removal and displacement of material by natural agents from its place of origin. Carried by flowing water and redeposited in another locality.

Riparian - Relating to, or living on, the bank of a river.

Runoff - Term referring to that rainwater which actually reaches a stream after losses from infiltration, transpiration, and evaporation.

Sailing Line - The line actually navigated - not necessarily the center of channel.

Sample, Disturbed - A soil sample containing all the constituents of a particular stratum, but the original soil sample has been altered.

Sample, Undisturbed - As above, but the original soil structure has been maintained.

Sand - As a soil separate, individual rock or mineral fragments from .05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz, but sand may be of any mineral composition. As a textural class, soil material that is 85 percent or more sand and not more than 10 percent clay.

Scarp - The generally steeply sloping, and many times near vertical portion of an eroding or failed bank which is located landward of the bench and berm, extending to the top of the bank.

Sediment - Rock or soil material that has been transported and deposited by water, air, or ice.

Sedimentation - The settling of solids, such as soil particles, by gravity.

Silt - As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a textural class, soil material that is 80 percent or more silt and less than 12 percent clay.

Siltation - The deposition of finely divided soil particles.

Slaking - The crumbling and disintegration of the earth materials upon exposure to air or moisture: specifically the breaking up of dried clay or indurated soil when saturated with or immersed in water.

Slip and Failure - Actual relative movement of a material that has been stressed beyond its ultimate strength.

Soil - A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief, over periods of time.

Spoil - See 'Dredge Materials'.

Stage, River - The height of water surface of a stream above some referenced datum.

Stratum - A definite layer of rock or soil consisting of material that has been out upon the surface of the earth.

Stream Terrace - A bench along the side of a valley, the upper surface of which was formerly the alluvial floor of the valley.

Stress - Force per unit area.

Stress: Shearing - A stress causing parts of a solid to slip past one another, like playing cards in a pack.

Structure, Soil - The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an angel mass of unaggregated and have properties unlike those of an equal mass of unaggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principle forms of soil structure are: Platy (laminated); Prismatic (vertical axis of aggregates longer than horizontal); Columnar (prisms with rounded tops); Blocky (angular or subangular); and Granular. Structureless soils are (1) single grain (each grain by itself, as in dune sand) or (2) Massive (the particles adhering without any regular cleavage, as in many claypans and hardpans).

Subaerial - Occurring beneath the atmosphere or in the open air; especially said of conditions and processes that exist or operate on or immediately adjacent to the land surface, or of features and materials that are formed or situated on the land surface.

Subsoil - Technically, the B horizon; commonly, that part of the profile below plow depth.

Substrate - The material which makes up the bottom of a stream or the surface to which living organisms attach themselves.

Substratum - Any larger beneath the solum, or true soil; applied to both parent material and other layers unlike the parent material below the B horizon.

Surcharge - An additional excessive burden: overload.

Surface Runoff - The water that flows off the land surface.

Surface Layer - The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness.

Swash - A narrow sound or secondary channel of water lying within a sandbank or between a sandbank and the shore.

Terrace - An embankment or ridge constructed across sloping soils on the contour or at a slight angle to the contour. A terrace intercepts surface runoff so that it will soak into the soil or flow slowly to a prepared outlet without harm.

Terrace (Geological) - An old alluvial plain, usually flat or undulating, bordering a stream; frequently called a second bottom, as contrasted to a first bottom or flood plain; seldom subject to overflow.

Terrestrial - Those organisms (plants and animals) that live on land.

Thalweg - the line joining the deepest points of a stream channel.

Topsoil - A presumed fertile soil or soil material, generally rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Turbidity - A measure of the clouded or muddy appearance of water. (See JTU).

UTM - Universal Transverse Meridian. The grid system in which the earth is mapped and divided into coordinates.

Water Table - The upper surface of the zone of water saturation in soil or rock masses.

Weathering - The chemical alteration and mechanical breakdown of rock materials during exposure to air, moisture, and organic matter, as well as changing temperatures.

Wisconsinan - The uppermost Pleistocene stage in Illinois and Wisconsin. Pertaining to the last glacial stage of the Pleistocene Epoch in North America, following the Sangamon interglacial stage. It began about 85,000+/- 15,000 years ago and ended about 7,000 years ago.